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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,572	07/18/2003	Akihisa Itabashi	240017US2DIV	2127
22850	7590	12/08/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			PHAM, HAI CHI	
			ART UNIT	PAPER NUMBER
			2861	

DATE MAILED: 12/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/621,572

Applicant(s)

ITABASHI, AKIHISA

Examiner

Hai C Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/715,151.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement (IDS) submitted on 08/06/04 was placed in the Application file. The information disclosure statement is being considered by the examiner.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 1-3 and 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

#### Claim 1:

- Claim 1 fails to clearly define the metes and bounds or some degree of the claimed limitations (e.g., "comprising"), which define the optical scanning device.

#### Claim 9:

- The following method step "transferring heat created from a rotation of the mirror through the deflector mounting plate" appears not to be part of a method for performing optical scanning but it is rather a natural event that occurs during the scanning operation. It is suggested to amend the claim as follows –wherein the

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heat created from a rotation of the mirror is transferred through the deflector mounting plate--.

Claim 10:

- Again the following method step "covering the mechanical deflector to substantially contain an air flow resulting from the rotation of the mirror" appears not a sequential step to be followed during the scanning operation since one does not need to "put on" the cover every time the optical scanning is performed, the cover being integrally and permanently fixed to the optical scanning device. It is suggested to amend the claim as follows --wherein a cover is provided to the mechanical deflector to substantially contain an air flow resulting from the rotation of the mirror--.

Claim 12:

- Again the following method step "positioning the cooling unit at an exterior surface of the housing" appears not a sequential step to be followed during the scanning operation since one does not need to keep "positioning" the cooling unit with respect to the housing every time the optical scanning is performed, the cooling unit being integrally and permanently fixed to an exterior surface of the housing. It is suggested to amend the claim as follows --wherein the cooling unit is positioned at an exterior surface of the housing--.

Claims 2-3, 11 and 12 are dependent from claims 1 and 9 above, and are therefore indefinite.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 4-5, 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshimura (U.S. 4,796,963).

Yoshimura discloses a scanning apparatus having a light source (laser diode unit 42) emitting a light beam directed to a mirror of a mechanical deflector (polygon mirror 52) through a first optical system (cylindrical lens 44), the light beam being deflected in a main scanning direction by the mirror surface of the deflector through a second optical system (f- $\theta$  lenses 46) to a surface to be scanned (drum 12) moving in a sub-scanning direction (direction of the arrow shown in Fig. 4), the angle of said mirror surface changing due to rotation of the mirror, wherein the light source, the first optical system, the mechanical deflector and the second optical system is contained in a housing (housing 30) and wherein the mechanical deflector is directly mounted to said housing (via screws 60) (Fig. 3), the material of said housing has heat conductivity smaller than that of a part of said mechanical deflector in contact with said housing (the housing 30 is made of heat resistant material such as unsaturated polyester resin while the polygon mirror assembly is made of aluminum) (col. 4, line 16 to col. 5, line 15).

With regard to claim 4, Yoshimura further teaches the polygon mirror having a deflecting mounting plate (flange 58), which contacts (by means of screws 60) the bottom housing plate (lower peripheral surface 36a of the housing 30).

With regard to claims 2 and 5, Yoshimura also teaches the mechanical deflector being covered by a cover (including the sound insulating plate 62 fixed onto the top of the cylindrical part 36 of the housing 30) having an optical window (opening 48), and thereby, an air flow (convection of air) occurring due to rotation of said mirror is kept within said cover (Fig. 7B).

The method claims 9 and 10 are deemed to be clearly anticipated by functions of the above structures.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2-3, 6-8 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimura in view of Tachibe et al. (U.S. 6,195,190).

Yoshimura discloses all the basic limitations of the claimed invention except for the cooling unit provided at an exterior surface of the housing.

Tachibe et al., an acknowledged prior art, discloses an optical beam scanning device having a light source (11) emitting a light beam directed to a mirror of a

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mechanical deflector (polygon mirror 15) through a first optical system (cylindrical lens 20), the light beam being deflected in a main scanning direction by the mirror surface of the deflector through a second optical system (scanning lenses 7) to a surface to be scanned (light sensitive body) moving in a sub-scanning direction, the light source, the first optical system, the mechanical deflector and the second optical system is contained in a housing (casing 2) (Fig. 1), the mechanical deflector being covered by a cover (8) having an optical window (10), and a cooling part (heat dissipating fins 18 formed on the exterior of the casing 2 and a cooling blower, not shown) forcibly cooling said mechanical deflector (col. 7, lines 44-52).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the cooling unit as taught by Tachibe et al. in the device of Yoshimura. The motivation for doing so would have been to further dissipate the heat created by the rotation of the polygon mirror to the outside of the optical scanning device such that none of the optical components are affected by the generation of the heat.

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new grounds of rejection presented in this Office action.

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***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HAI PHAM  
PRIMARY EXAMINER

December 2, 2004